FACTSHEET

Plant Protection & Quarantine

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The Boll Weevil Trap: An Eradication Tool

The boll weevil trap, a seemingly simple device, is the cornerstone technology in boll weevil eradication. This trap and the pheromone (insect attractant) it contains is the efficient, inexpensive result of decades of research. Without this trap it is unlikely that scientists or the cotton industry would have undertaken the challenge of eradicating boll weevils—the primary insect pest of U.S. cotton.

What Does it Do?

The main role of the boll weevil trap is detecting weevil populations throughout the season. When populations are low the trap also acts as a control device.

Early in the season, the trap detects whether weevils have overwintered. Later in the season, it tells program officials where weevils are and the level of the pest population. Without this information, pest populations could go unnoticed—or money could be spent spraying fields unnecessarily. Trapping with the pheromone grandlure detects weevils at lower levels than a scout could find them visually. Producers should remember that the program traps and control measures are directed only toward boll weevils.

In the spring the trap effectively attracts and kills weevils since it has little or no competition for their attention from sources of food (the cotton crop) or sex (other weevils). The trap contains a small vinyl strip with a contact insecticide that kills all captured weevils.

How Do the Pheromone and Trap Work?

The pheromone is a chemical called grandlure, and is a laboratory version of the weevil's own attractant. Fresh 10-milligram samples of time-released lure are placed in traps about every 14 days. The pheromone scent draws in weevils from the surrounding field.

Years of careful research have refined the shape, color, and size of the trap for optimal attractiveness to the boll weevil. The trap needs to be above the cotton plants and not surrounded by weeds so that it is visible to the weevils and has good air circulation to carry the scent of the pheromone across the field. Boll weevils that land on or in the trap's cup naturally crawl upward through the top of a screen cone into the capture cylinder which holds the strips of lure and insecticide.

How Can Growers Assure They Have Functional Traps?

Growers whose traps are knocked over by severe weather or farm equipment should stand them up again since traps lying on the ground are not functional. Traps under trees, in brushrows or other shaded areas lose their effectiveness and give misleading data. Keeping field borders clear and free of weeds allows access by program trappers and equipment and helps provide maximum trap exposure. Poor trap maintenance can result in underestimated weevil populations and missed treatments. This will prolong the time and cost of the eradication program.

Which Fields Are Trapped?

Program officials monitor all fields that are planted with cotton or that had been in cotton the previous year. The program works with USDA's Consolidated Farm Service Agency (CFSA) to find and trap cotton fields. To have fields properly trapped, it's important that growers register their planting intentions with CFSA by early April. Growers should notify the program if their fields remain untrapped.

When Does Trapping Begin?

In fields planted to cotton the previous season, traps are placed late in March on field borders, the most likely place to find hibernating weevils. Current season cotton is trapped beginning in late April.

Where Are Early Season Traps Located?

Scouts place traps 100 to 125 feet apart on field borders adjacent to overwintering sites. Open areas are trapped at about 200-foot intervals. In program areas in the East, this gives an overall density of about one trap per acre. A density of about one trap

per three acres is used on larger fields, especially in Texas. Exact trap density will vary from field to field depending on the field's size, configuration and proximity to hibernation sites.

How Does Trapping Change Throughout the Season?

In early July, traps are removed from most fields that were not replanted with cotton. The trapping rate in current-season fields may be reduced since the traps are only used to detect reproducing weevil populations at this point in the season. Traps are placed evenly around the field, no more than 250 feet apart. Infield traps may be used along ditches or other natural breaks or where an infestation is suspected.

How Often Are Traps monitored?

Traps in cotton fields are checked weekly during the eradication phase of the program. Scouts date the traps (which are identified by unit and field number) each time they monitor them and indicate whether or not weevils were found. Quality control checks include checking dates on traps, changing lure colors, and placing dead marked weevils or other objects in traps.

When Does Trapping End?

Program scouts check and maintain the traps until the producer destroys the cotton stalks or weather terminates the crop. A few traps stay in the fields through the winter so that weevil populations can be compared from season to season.

What Happens When Eradication Is Complete?

After the eradication program is finished, trapping continues at a reduced rate. Scouts check the traps every two weeks. If weevils are captured, program officials increase trapping and apply treatments when necessary to prevent reinfestation.